

Message from the Director



As the Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), I am pleased to present this annual report highlighting the research efforts and programs supported by the Institute. The NIDDK has a broad research responsibility that includes some of the most common, debilitating, and costly conditions affecting Americans. These conditions include diabetes and other endocrine and metabolic diseases, such as cystic fibrosis; liver disease and other digestive diseases, such as inflammatory bowel disease; nutritional disorders and obesity; kidney diseases, such as polycystic kidney disease; urologic diseases and conditions, such as interstitial cystitis/painful bladder syndrome; and hematologic diseases.

The 14th edition of this report illustrates recent NIDDK-supported scientific advances, such as:

- Findings from a clinical trial that youth with type 2 diabetes face increased risks of heart, nerve, and eye complications
- Demonstration of the feasibility of a wearable, smartphone-based “artificial pancreas” prototype for management of type 1 diabetes
- Discovery of a new class of genes involved in maturation of pancreatic cells that produce insulin
- Evidence that a brief psychological and educational group therapy can reduce symptoms and improve quality of life for those with irritable bowel syndrome
- Discovery that a protein found in the brain regulates body weight and that its deficiency may be associated with obesity in humans
- New insights into the roles that bacteria in mammalian intestines (gut microbiota) play in the link between gut inflammation and cancer, in severe malnutrition, in metabolism and obesity, in the weight loss seen following gastric bypass surgery, and in blood pressure regulation
- Identification of a genetic mutation that causes a distinct form of hemolytic uremic syndrome, a condition marked by kidney damage and abnormal blood cell function, with implications for treatment strategies
- Finding that beverage choice is associated with progression or reduction of urinary tract problems
- Development of a new technique to deliver therapeutic drugs across the blood-brain barrier, which may lead to treatments for lysosomal storage disorders

This report also includes personal stories of patients. A doctor with type 1 diabetes describes his participation in a study aiming to determine why some people with the disease develop complications while others do not. A participant in a type 2 diabetes prevention study and his identical twin brother share their experiences with lifestyle changes to improve their health. A woman discusses the daily difficulties of living with fecal incontinence and shares her resolve to help others with this debilitating and often hidden condition.

The NIDDK is continuing efforts to ensure that knowledge gained from research advances it supports is disseminated to health care providers, patients, and the general public. Such efforts include the Institute's education programs: the National Diabetes Education Program and the National Kidney Disease Education Program. Additionally, the Weight-control Information Network, the National Diabetes Information Clearinghouse, the National Digestive Diseases Information Clearinghouse, and the National Kidney and Urologic Diseases Information Clearinghouse develop and distribute science-based information on diseases and disorders within the NIDDK mission. Several hundred brochures, fact sheets, and publications are available to patients, health care providers, and the public both in printed format and on the NIDDK website. I invite you to visit us at www.niddk.nih.gov

This report reflects only a fraction of the immense body of NIDDK-funded research performed by basic scientists, clinical investigators, and patient volunteers. Moving forward, we remain committed to supporting these important areas of research and translating scientific discoveries into improvements in the health and quality of life of all people.



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The efforts featured in this publication reflect the core mission of the NIDDK, including the Director's guiding principles:

- Maintain a vigorous investigator-initiated research portfolio
- Support pivotal clinical studies and trials
- Preserve a stable pool of talented new investigators
- Foster exceptional research training and mentoring opportunities
- Ensure knowledge dissemination through outreach and communications

More information on how NIDDK's activities support these core values can be found in the "NIDDK Funding Trends and Support of Core Values" section at the end of this report and on our website at www.niddk.nih.gov



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